

OPTICAL INSPECTION METHOD AND APPARATUS HAVING AN ENHANCED  
HEIGHT SENSITIVITY REGION AND ROUGHNESS FILTERING

ABSTRACT

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An optical inspection method and apparatus having an enhanced height sensitivity region and roughness filtering uses a Fabry-Perot cavity to increase the phase detection sensitivity for light reflected from surface defects having a height above a predetermined level. A partially reflective surface is inserted between an illumination subsystem and a surface under inspection. The position of the partially reflective surface with respect to the surface under inspection is adjusted to provide both filtering of defects below the predetermined level and enhance sensitivity for a region of defect heights above the predetermined level. The angular resolution of the inspection system is improved, providing far-field inspection that can detect small-profile defects having unacceptable heights. Media storage, semiconductor wafer and other precision surface manufacture may be improved by use of the techniques of the present invention.